

OFFICIAL JOURNAL OF  
THE MUSHROOM GROWERS'  
ASSOCIATION

# MGA

## BULLETIN

MARCH, 1952 · NUMBER 27

### CONTENTS

Editorial	...	...	...	...	...	...	...	...	71
Correspondence	...	...	...	...	...	...	...	...	72
Notification of Vacancies Order	...	...	...	...	...	...	...	...	72
New M.R.A. Officers	...	...	...	...	...	...	...	...	72
Mr. Middlebrook Consults His Diary	...	...	...	...	...	...	...	...	73
My Way of Growing : The Jarrow Farm	...	...	...	...	...	...	...	...	74
Peak Heating Formula	...	...	...	...	...	...	...	...	78
Recent Developments in Disease Control : G. L. Hey	...	...	...	...	...	...	...	...	79
Mushroom Industry Exhibition	...	...	...	...	...	...	...	...	80
Who's Who—2	...	...	...	...	...	...	...	...	81
New M.G.A. Members	...	...	...	...	...	...	...	...	82

2/6



Don't Forget  
the  
**MUSHROOM INDUSTRY  
EXHIBITION**  
AT  
**WORTHING**

\*

5th MARCH, 1952

\*

*See full details  
on page 80*

# SOBEXAS

THE PURE CULTURE SPAWN  
IN THE STERILE PACK



A unique system of spore selection developed over many years makes "SOBEXAS" strains highly and consistently productive.

Several strains are available for immediate delivery—we particularly recommend the now familiar No. 32—and No. 2—which is the new and improved American type strain.

"SOBEXAS"—Fresh—vigorous—early cropping and consistently good.

**Monro**  
COVINGTON GARDENS

## G E O . M O N R O L T D .

Hertford Road, Waltham Cross, Herts. Telephone : Waltham Cross 3663 (5 lines)

AYLESFORD, KENT ; GT. TOTHAM, ESSEX ; SWANWICK,  
HANTS. ; CHELTENHAM ; GLASGOW ; GUERNSEY ;  
PENZANCE ; SPALDING ; WORTHING ; ISLES OF SCILLY

# M.R.A. Activators 99·9 Soluble Blood

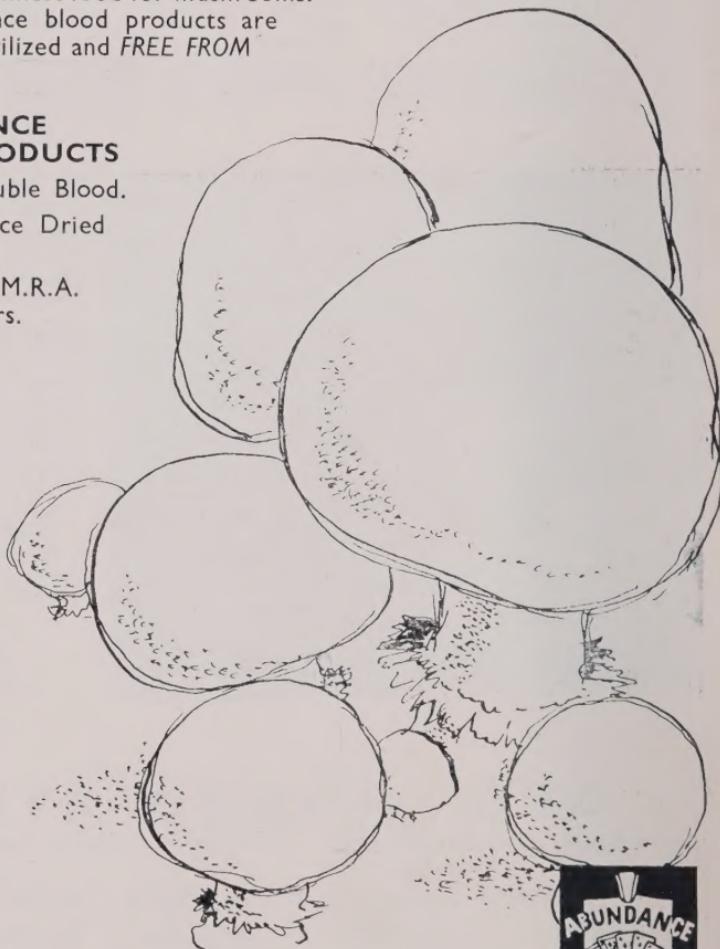
They will "Spring up like mushrooms"—just as good mushrooms should, if you make your compost with Official M.R.A. Activators containing Abundance blood products which are nature's finest food for mushrooms.

All Abundance blood products are certified sterilized and *FREE FROM DISEASE.*

We are  
Exhibiting  
at  
Worthing  
STAND  
"M"

## ABUNDANCE PRODUCTS

1. 99·9 Soluble Blood.
2. Abundance Dried Blood.
3. Official M.R.A. Activators.



write for details and prices :

Dept. 2, **BRADFORD FERTILIZER CO. LTD.**  
**Whitefield Place, Girlington, Bradford, Yorks.**





*"Obviously  
a case for the  
\* Specialist"*

## We are specialists!

in the Selling of MUSHROOMS

A special department, with an experienced sales staff, is devoted to the selling of MUSHROOMS . . . . . and nothing else

Such SPECIALISATION and concentration on one type of produce MUST give results which are the best obtainable



*For full information write to:-*

**FRANCIS NICHOLLS LTD**

SMITHFIELD MARKET.  
BIRMINGHAM.

TELEPHONE: MIDLAND 6001 (7 LINES).  
TELEGRAMS: NICHOLLS SMITHFIELD BIRMINGHAM

MUSHROOMS of Best Quality WANTED  
in BIRMINGHAM

**Messrs. Geo. Jackson & Co. Ltd.  
of Smithfield Market,** offer their services  
to growers

SPECIAL DEPARTMENT  
RESULTS WIRED DAILY  
PLEASE CONTACT US NOW

---

Telephone : MID. 2232

Telegrams : ORANGE - BIRMINGHAM



**SPECIALIST PRODUCTS for  
MUSHROOM GROWERS**

**TETRYL**

*Ready mixed H.E.T.P. spray, only requires dilution with water. Controls mites, springtails and fly in mushroom beds—does not leave any poisonous residue.*

**10% D.D.T. EMULSION**

*Made up with no oil or other harmful solvent. Quite safe to use on mushroom beds for the control of fly. Does not cause staining.*

**STERIFORM**

*Special form of non-polymerising formaldehyde specially suitable for mushroom casing soil. Controls verticillium, fusarium, dactylium, etc. Also ideal for washing down houses.*

*P.B.I. also supply special 5% or 10% white D.D.T. dusts, B.H.C. dusts and Nicotine powders. Supplies are always available, and we welcome your enquiries.*

Sole Manufacturers :

**PAN BRITANNICA INDUSTRIES LTD.  
WALTHAM ABBEY, ESSEX**



# COUNTER ATTACK

At long last science has provided a powerful ally in the battle against mushroom diseases. The new selective fungicide, based on Zinc salt of ethylene-bis-dithiocarbamate now available in this country, is formulated in our own factory and sold

under the trade name of "Zibimate." Correctly used, Zibimate has been found to give adequate protection against several of the mushroom growers' most formidable enemies, notably Cobweb disease (*Dactylium dendroides*) and Bubble (*Mycogone perniciosa*). But Zibimate is essentially a preventive and not a control and cannot therefore be relied upon to eliminate established infections. If you would like to know more about this valuable new weapon, why not drop us a line?

---

*Our Advisory Department will be pleased to give information or guidance on Mushroom Growing to any commercial grower.*

---

## ZIBIMATE

The New Selective Fungicide

**W. DARLINGTON & SONS LTD.**

*Mushroom Spawn and Insecticide Specialists*

**WORTHING, SUSSEX**

# MUSHROOM INDUSTRY EXHIBITION

**MOUNT WHITE**

*The  
Perfect White*

**MUSHROOM**

*for  
Commercial  
Growers*

DISTRIBUTORS  
J.E.R.SIMONS LTD.  
HARLOW  
ESSEX

MOUNT  
MUSHROOM  
SPAWN  
LABORATORIES  
LITTLEBOURNE  
CANTERBURY

WE LOOK FORWARD TO  
SEEING YOU AT WORTHING  
ON MARCH 5th

The NEW

# MGA BULLETIN

MARCH

1952

NUMBER 27

## \*STANLEY MIDDLEBROOK EXPLAINS

This unexpected, somewhat slimmer, Bulletin bears the date March whereas you looked for your next quarterly in April. It has lost its stiff cover but not, we think, any of its brilliance. Let me explain.

The M.G.A. Bulletin has always been a **quarterly**, and as it grew from eight pages to its comparatively magnificent 70 or more it maintained its popularity as one of the best things the M.G.A. has done. But it always had one serious drawback : It "went to press" a month before it reached the grower, which meant that anything that happened after, say, March 1st missed the April issue and had to wait until July—and much can happen in 4 months. Moreover, quarterly intervals are long enough for a member to wonder if his Association has forgotten him.

Then why not a monthly Bulletin ? That has long been our aim, but there were two major difficulties. First, the availability of articles in sufficient number and regularity to provide monthly reading, and second, what would be the attitude of our advertisers—did the size of the Mushroom Industry warrant monthly advertising by those good friends of the M.G.A., spawn makers, sundriesmen, salesmen and others ?

We decided to be courageous and ruthless. Courageous, in making a complete change, which will present members with more frequent information and, we hope, give them more encouragement to use their association. Ruthless, in reverting to a much simpler, more utilitarian booklet in which elegant artistry will be sacrificed to economic and administrative expediency.

So after a period of re-fashioning by Rooster Publicity Ltd., publication, production and advertising are now back in the hands of the M.G.A. with F. C. Atkins as Managing Editor. This is, I think, all to the good for the M.G.A. Although it imposes an extra strain on Mr. Atkins, who has already spent so many overtime hours for the Association without thought of remuneration, he is for the first time since 1945 free of office, and his journalistic experience makes editing of this nature less irksome to him than to most of us. But I hope members realise what a debt we owe him.

Finally, wishing the new venture as great a success as the old quarterly, I hand you back to the Editor.

\*Original Editor, and senior member of the Editorial Board.

## CORRESPONDENCE

Some authorities recommend that, in **pasteurizing**, the **temperature** of the beds be raised to 130—140° F. gradually, and that when pasteurizing is complete the temperature should be lowered by stages. One American manual counsels against sudden rises and suggests the following timetable :

First 24 hours	..	..	Raise temperature to	90° F.
Second 24 hours	..	..	" "	115° F.
Third 24 hours	..	..	" "	125° F.
Fourth 24 hours	..	..	" "	130—140° F.

A cooling rate of 12° F. per 24 hours is suggested. In *Mushroom News* a similar tempo of cooling is suggested by Messrs. Darlington. Letters from Dr. Sinden and Dr. Lambert suggest the rates of heating up and cooling down are immaterial.

**Lt. Col. E. NOEL.**

May I make an urgent plea for some research to rid the country of **Cecid larvae**? I have found BHC to be quite effective if mixed with the compost (1 lb. to the ton) at the last turn. It certainly keeps out all trace of larvae for about six weeks. Then I presume it loses its effect, for they appear as if from nowhere. I have had some success at this stage with liquid nicotine, considerably stronger than advertised (i.e. 1 fluid oz. to 1 qt. water).

**M. STRATTON-CLARKE.**

I have always liked using **sulphur at peak heating**, but having low-pressure steam heating I am obtaining very much higher temperatures with the result that there is a shortage of oxygen, which is so essential to burn anything. I have tried to acquire sulphur dioxide in bottles but find it is too costly. I have tried cyanide gas and BHC but have not had good results. I have been successful in killing the mushroom mite, and effecting a 75% kill of the "red pepper" mite, by using a strong solution of nicotine at the expense of stained mushrooms. But unless there is a 100% kill at this time a good crop cannot be expected.

**T. A. C. SPARLING.**

### NOTIFICATION OF VACANCIES ORDER, 1952

Since the recent publication in the Trade Press that horticultural workers are specifically exempted from the provisions of the new Notification of Vacancies Order, which came into force on 25th February, one Employment Exchange has denied any knowledge of this exemption. The matter is being looked into by the M.G.A. Secretary, and members in difficulty should contact him at once.

### NEW M.R.A. OFFICERS

At the Annual Meeting of the Mushroom Research Association Ltd., held in London, on 29th January, Mr. J. Stewart-Wood was elected Chairman in succession to Mr. F. C. Atkins, who did not seek re-election, and Captain G. P. Lawrence was elected Vice-Chairman in succession to Major C. P. Whitaker. In moving the adoption of the Accounts, Mr. Atkins commented : "For the first time, the maximum grant-aid was required to see us through 1951. We certainly cannot afford any further reduction in the level of subscriptions, for the Ministry's grants are dependent upon the growers finding at least 25% of the running expenses."

# Mr. Middlebrook Consults His Diary

**December 14.** With the increasing cost of living the layman's awkward questions become more insistent. "Why are mushrooms so expensive? . . . . Why can't you bring the price down? . . . . Why are they beyond the average reach? . . . . etc." So difficult to answer to the customer's satisfaction. To go into costings means little. The safest answer seems to be that price is governed by supply and demand, which is quite true and after all leaves the solution in the customer's hands.

**December 18.** Slight variations in method (not time) of short composting appear to produce results of disproportionate variety.

**December 21.** Owing to the almost complete submergence of most of our district under the season's heavy rains we are compelled to use very wet and lumpy soil. Results seem to be larger but fewer mushrooms.

**December 24.** Once again our short composting times are being upset by the Christmas holidays. What should be a critical process for several stacks is resolved into mere guesswork. What is the alternative?

**December 25.** It's pleasing to find that mushrooms are being used more and more in hotels and restaurants. Our excellent hotel Christmas dinner to-day included the delicacy.

**January 1.** The pot plant trade of our small nursery having gone, as it were, to pot, we are joining the ranks of the glasshouse mushroom growers in our small way. We are hoping that the lowly fungus will eclipse the higher plants!

**January 3.** I herewith place on record my belief that **quality** depends almost entirely on soil and its management and that compost has nothing whatever to do with it. A lumpy moisture-holding soil is claimed to be the best, but I'd bet it's probably the worst if improperly treated.

**January 4.** For several weeks now we have been using some of the new plastic hose. Daily hard use has so far shown it to be in no way inferior to the ordinary strong 2-braid rubber hose. It is much lighter to handle and appears to stand any amount of kinking without splitting **and** it is exactly half the price.

**January 5.** I am now able to confess that our first attempts with M.R.A. synthetics have been a lamentable failure. The first two did only  $\frac{1}{2}$  lb. in 27 days and were scrapped. The third is now at only 0.3 in three weeks. The fourth is 0.6 in 18 days. Both these will be written off. A fifth, just cased, has gone so dry that it looks like suffering the same fate. This is very lowering to our dignity. Our only excuses are that we did not follow the orthodox composting methods and that stable composts have produced well below average in the same period. A third factor is the unavoidable use of unsuitable soil, mentioned earlier.

**January 6.** For a long time we have been waging unremitting war on an elusive rat. It feeds with avidity on our best quality mushrooms and, thus fortified, defies execution by carrying away the traps firmly attached to either near-side or off-side rear foot. It has been seen but not conquered. It seems to favour the connecting drains and heat-pipe tunnels for its hide-outs. The chase continues.

# MY WAY OF GROWING

## 6—J. Hunter Carr, of Jarrow

*“Dream Farm” described by Lawrence Taylor  
OF SUNDERLAND*



The mushroom grower's “dream farm of the future” stands in Jarrow, a short distance from the Tyne Tunnel, in the very heart of a smoky and gas-polluted industrial area.

This strange site was no idle choice. Before he bought it, Mr. J. Hunter Carr, M.G.A. member and sole owner of this amazing farm, had purchased another site in South Shields with exactly the same characteristics, and plans were taken out for this as a mushroom farm also. Cheap land with available soil were secondary factors. There was not more than two inches of soil on either site.

Indeed, Mr. Hunter Carr may eventually need no kind of casing medium whatsoever. I have seen wonderful crops growing to perfection without casing.

I have mentioned these points at the outset to prepare readers for surprises. *Orthodox methods are ruthlessly brushed aside at the Jarrow farm.* But I should inform readers that the farm is not open to visitors. No journalist apart from myself has been allowed inside.

Lending an important hand in the venture—completely screened by high brick walls—are Mr. Hunter Carr's brother-in-law, Mr. Victor Ord (as architect), and his father, Mr. Thomas B. Carr, a very active gentleman for all his 84 years (as builder). Mr. Hunter Carr himself prepared the draft plans.

This farm is so revolutionary in its approach to mushroom growing that it is difficult to describe the various operations to link them with prevailing methods.

Horse manure is not used. Instead, a base similar to paper pulp is placed in tanks and reinforced with trace elements and small quantities of buffer elements. Following this treatment the pulp is drawn on to a ramp or sloping platform. Drainings are analysed daily. Cement draining wells are being constructed to replace the tanks and the base will then be drained without being put on the ramp.

The microscope figures prominently here. Protozoa chiefly represent the "indicators," and the microscope is employed to watch for their multiplication in the warm pulp. Only an elementary knowledge of protozoology is necessary, according to Mr. Hunter Carr.

After about 24 hours on the ramp the pulp is drawn up to a series of giant terraces. There, in terms of composting, it undergoes a five-day treatment and is then ready for filling. In the meantime another supply of "compost" is moving up; the process is continuous.

In this manner the terraces can deal with the equivalent of a compost heap 120 feet in length, six feet high and seven wide, every seven days from start to finish. As the resulting growing medium need not be more than one inch in depth, the terraces can cope with enormous bed areas.

The prepared medium is rolled out, placed in all-steel trays, allowed to cool off, spawned and removed on conveyors to the growing rooms. The trays are completely covered over before being removed, to eliminate risk of contamination.

Under the particular conditions imposed, peak heat is seldom necessary. But peak heat, as it is understood to-day, is a relatively inappropriate term to describe the Jarrow process. If the product is not up to the pre-determined standard, it is irradiated by means of Fenite Units.

Mr. Hunter Carr is not at present at liberty to explain this apparatus, for Messrs. Fenwick & Knight, of Derwentwater Lane, South Shields, are to market it, and are awaiting the grant of Letters Patent.

It has been found that spawning can be done during the rolling out of the "compost," provided the finished medium is falling rapidly in temperature when it is laid in the trays. The method of spawning has practically nothing in common with the usual methods, for the spawn is *blown* over the beds. This obviates handling and reduces the risk of contamination to practically nil.

The spawned trays are close stacked to a convenient height of 5 ft. 6 in. No air circulation is possible, but this does not reduce the effectiveness of the irradiating units which are now set in operation, and mushrooms appear in about 20 days, regardless of seasons.

The trays are then opened out to permit "casing material" to be *dusted* on to prevent a collapse of the growing mushrooms after the shock of sudden exposure to abundant air supply and temporary lack of support from the irradiating units. Note that mushrooms are formed before the trays are "cased."

From now onward, growth is extremely rapid and further treatment is necessary to arrest it after the trays are put on shelves in the cropping rooms.

True cropping starts four or five days later and continues without interruption for three weeks, but good yields are quite common from trays that are being moved. This early "upstart crop" is not viewed with favour.

There is no trashing of the beds and, of course, no renewal of the casing material is necessary.

With a 2 ft. spacing between tiers, each of the six cropping rooms can accommodate 1,500 square feet of five-inch trays, but the majority of the trays on the farm are only four inches deep, and many are less than two inches.

The average yield, determined by tests at experimental units, is 1 lb. 3 oz. to the square foot. The yield is comparatively low for the bed area, but this can be made up by the speed of production (12 crops annually—15 are possible) and the comparatively small amount of growing medium used and labour involved.

The depth of bed makes practically no difference, but a deep bed has a longer useful life. A shallow tray is easier to move about, and extended cropping periods are not desired.

The spent compost, if it can be called "compost," is to be used for the manufacture of chemicals in demand in other industries. That is the only reason Mr. Hunter Carr prefers deep trays to shallow.

Actually, all the trays are adjustable as to depth. A five-inch tray can be reduced to accommodate a one-inch bed. The bottoms are loose, and can be raised to give any depth of compost up to five inches. In addition, a five-inch tray can be divided to accommodate two two-inch beds for transfer to three-inch trays, or four one-inch beds for transfer to two-inch trays. This has been called the Divided Tray System. At the moment there are 2,000 adjustable five-inch trays and 6,500 adjustable shallow trays. Trays are made of steel, and Mr. Hunter Carr insists on acetylene arc welding for the corner junctions.

The farm is air-conditioned ; temperature and humidity are remotely controlled. Each ground ventilator is alone capable of giving a complete change of air every hour. There are also five independent ventilators to each house. Ventilation can be directed upward or downward at will, without mechanical aid.

Employees are encouraged to make experiments on their own account with sample all-glass cropping trays. They have their own section in the general laboratories, and have access to a binocular compound microscope, about 1,000 slides of microfungi, and 300 books on mycology and allied sciences.

The farm has taken three years to build, and cropping should be in progress by the time this article appears.

Provision has been made for the manufacture of pure-culture spawn.

Growing for the moment will be conducted in shallow trays on more-or-less present-day principles, with many innovations. But preparation has been made for the changeover to entirely revolutionary methods having practically nothing in common with to-day's operations. Mr. Hunter Carr calls this the Docket System of growing.

### **The Docket System**

I hesitate to mention the potentialities of the Docket System. It will be sufficient to state that those people who have seen it in experimental operation could hardly believe what they saw. At the present

time, it is more of a laboratory show piece than a commercial proposition, but its possibilities are enormous.

The mushrooms are grown on both sides of boards. These boards, which need not be thicker than one-eighth of an inch, are made out of the pulp-like growing medium rolled into sheets, and only one flush can be taken from them because they cannot withstand being pulled about. In consequence the yield is low for the actual bed area, but 14 ounces to the square foot has been picked from test "beds."

The impregnated boards are placed very close together, and at first the watering of them presented a problem. It has been overcome in this way.

There is an energising plant for the water supply to cropping rooms, working in conjunction with equipment in the air-conditioning room. A fog mist which can be heated or chilled as desired is dispersed under high pressure (up to 100 lb. per square inch). It leaves the nozzles at a velocity of not less than 25 m.p.h. at 8 ft. from the ejector nozzles to build up an electrical charge. This charge breaks down when the finely divided particles settle on beds, walls and floors. The mist is effective at about 150 ft. from the ejector and penetrates everywhere. If desired it can carry sterilising chemicals.

The quantity of food which could be produced on the Docket System, from a site covering less than an acre, would be enormous; but this method of growing is still in its experimental stage and is beset with very complex problems, and for the moment the rooms constructed for it are utilized for more orthodox growing.

These rooms can be sterilized in 10 second by a "blue fire" of carbon bisulphide. Treatment with certain bromides and a tungsten compound prevent it from exploding violently. Used in this manner, carbon bisulphide is better than burning sulphur, and the heat generated is surprisingly little.

---

EDITORIAL NOTE : It might be considered unkind to Mr. Hunter Carr to draw the attention of readers to the note which appears in *all* our Bulletins, to the effect that we do not hold ourselves responsible for statements made or views expressed herein.

At first Mr. Hunter Carr refused to enter into any correspondence with Yaxley except indirectly by way of the independent journalist who has written this article, but since then he has been very patient in replying to the many questions which we addressed to Mr. Taylor.

During the course of this correspondence we came into possession of some startling information (e.g. Messrs. W. Todd & Sons Ltd., the North of England wholesale and retail distributors, say that in their 53 years' experience they have never seen mushrooms to come anywhere near to the superb quality that is produced on the Jarrow farm, and do not hesitate to describe these mushrooms as the world's best quality). We therefore decided we should publish the journalist's article rather than say : "We must have ALL the facts, patents, etc., or we shall ignore it."

For obvious reasons we are not in a position to pass judgment on the Jarrow project, but we have had possession of the plans, which were explained in detail. They are certainly revolutionary in design, particularly in regard to the giant terraces referred to.

Correspondence has been passing between Yaxley and Jarrow since June, 1951, and although Mr. Hunter Carr is a very busy man he personally gave us a lot of information that was not included in Mr. Taylor's original report. Even now, of course, the story is far from being complete, and we have only a limited amount of the technical data.

Mr. Hunter Carr writes : " Growers have no right whatsoever to imagine that what is known to one particular member should always be the common property of all. But, since I am a member of the M.G.A., Yaxley is justly entitled to expect me to contribute some early information selectively rather than indiscriminately."

If members would submit their inquiries through Yaxley, it would spare him much duplication of correspondence and enable replies to be published in a subsequent Bulletin.

*The COPYRIGHT of this article is held by the Author and the Mushroom Growers' Association, and reproduction in whole or in part requires their joint permission.*

---

## PEAK HEATING FORMULA POUNDS OF STEAM PER HOUR

**Mr. A. D. Harrison**, Provincial Advisory Officer at Wye, was present at the recent Area Meeting at Riverhead, when it was asked how much steam was required to peak heat a mushroom house of given dimensions.

Mr. Harrison at once contacted **Mr. G. Gill**, of the Regional Fuel Office at Tunbridge Wells, and Mr. Gill's reply was as follows :

"As you will be aware, the calculation of heat requirements of a building is rather a complicated business, and there is no straightforward formula available which can be quoted.

"In order to give you some guidance on the matter, I have devised the following formula, which should give you a rough estimation of the steam requirements. This formula is based on a thermal transmittance of 0.3, i.e. a reasonably well insulated building, a temperature difference of 130° F., i.e. allowing for 30° outside temperature during winter months, and assuming low pressure steam of something of the order of 10 lb. per square inch pressure is used. The formula then resolves itself as follows :—

$$\frac{39 \times \text{area building} + 20\%}{950} = \text{pounds of steam per hour}$$

Area of building = total area of walls, roof and floor.

"The 20% allowance is to cover air changes.

"This should meet your general requirements, but I would suggest that any specific cases which you may have, particularly where new plant is to be installed, should be treated on their merits. We shall be glad to assist you in this connection, should you think this necessary."

# Recent Developments in Disease Control

by G. L. HEY, M.A.

(of The Murphy Chemical Co. Ltd.)



By far the most important development in disease control on mushrooms in recent months is the advent of an outstanding fungicide for control of Bubble (Mycogone), Dactylium, Verticillium and Red Geotrichum.

Research in U.S.A. and on the Continent has shown that two proprietary American materials, Dithane Z-78 and Parzate, are very effective, particularly for Bubble. They are both based on Zinc ethylene bis dithiocarbamate (Zineb). Unfortunately, owing to the dollar shortage, it has not been possible for them to be imported.

Tests have therefore been carried out in this country with other materials, including TMTDS (Tetra methyl thiuram disulphide) and an alternative form of Zinc ethylene bis dithiocarbamate. The latter has proved the more effective of the two and almost as good as Dithane. It has also been found that while wet spraying is effective against Bubble, Verticillium and Red Geotrichum, dusting is much more effective than spraying against Dactylium. Dusts can also be employed against the other diseases mentioned if desired.

The present position is that wettable powders for spraying and dusting based on Zinc ethylene bis dithiocarbamate are now available commercially in this country.

For general routine treatment against Bubble or other diseases three applications of spray or dust are advised ; The first soon after casing, the second between the first and second breaks, and the third between the second and third breaks. **The application should be made before watering.**

For wet spraying a concentration of 1 lb. of Zinc ethylene bis dithiocarbamate per 100 gallons water is advised, applying one gallon of diluted spray per 100 square feet of bed.

For dusting an application of 8 to 12 oz. of a 15% powder per 1,000 square feet of bed should be given.

The same rates of spray or dust are also advised for spot treatment where the routine application has not been carried out. The first spot treatment should be followed by two further applications between the next two breaks.

There is also evidence beginning to accumulate that the routine use of dusts and sprays containing this new fungicide will reduce the incidence of Bacterial Spot.

The interesting point about Zinc ethylene bis dithiocarbamate is, of course, that it is one of the few fungicides —TMTDS is another— which will destroy a number of fungus diseases without harming the mushrooms. This is because the fungi in question produce an enzyme which breaks down the fungicide into compounds containing sulphur which then destroy the fungi. The mushrooms do not possess this enzyme and are therefore not affected by the fungicide.

# Mushroom Industry Exhibition

## Worthing—5th March, 1952

In past years we called it the Trade Show and held it in a marquee at Yaxley, this year we are calling it The Mushroom Industry Exhibition and holding it in the fine Assembly Hall at Worthing on the 5th March. Essentially it has not changed ; it is still the grower's " day out " and his chance to meet friends and the sundriesmen who contribute so much to the success of the Industry. It will be bigger, of course—it has grown each year—and we are taking no risks with the weather this time.

The Executive Committee have decided that the public might be interested and they are to be admitted by ticket ; Wednesday, 5th March, is a half-day in Worthing, and we have every hope of seeing quite a number of them there. The local greengrocers are co-operating and giving away a limited number of complimentary tickets beforehand. A cooking demonstration is being staged by the South Eastern Electricity Board and the public will no doubt be interested in the display of mushrooms as well as the stalls of the exhibitors. The idea is to boost the sale of mushrooms.

A great advance on previous shows is that we are to have a produce competition. The M.G.A. will present a Challenge Cup to the winner ; three other cups and substantial cash prizes will also be offered to those entering. A Competition Committee is now working on the final details and these will be circulated to all members through the medium of the Show Programme.

The Mayor of Worthing, Councillor J. A. Frampton, will open the Show at 11 a.m. and the prizes will be presented in the afternoon. One member of the Committee suggested that the local growers would have a big advantage in submitting fresh mushrooms for the competition, but from what we know of mushroom growers we think there will be some excellent entries from far away. It has been rumoured that the Chairman will have his aeroplane standing by from dawn on the 5th . . . . .

The Hall has a fine balcony and we will be showing the new Plant Protection/Darlington Film 'Mushroom Growing' in colour during the early evening. This film, which is a ' must ' for all growers, was made with the co-operation of the M.G.A. and M.R.A.

Our Show is growing up, but the Committee intend to make every effort to avoid that highly commercialised atmosphere prevailing at some Shows We Have Seen . . . . . The bar prices will be reasonable and it will open during the evening as well as lunch time. A substantial meal will be laid on in the Restaurant for 5/-. Coffee and Snacks will be available throughout the day.

# WHO'S WHO—2

## Dr. and Mrs. P. J. BELS

Pieter J. Bels, Director of the Dutch Laboratory for Mushroom Research at Houthem St. Gerlach, Limburg, is well known to us in England.

He was trained as a plant physiologist at the University of Utrecht, where he took his Doctoral degree in Biology and continued as a demonstrator. He also worked with his distinguished aunt Professor Johanna Westerdijk in the Phytopathological Laboratory at Baarn on fungi parasitic on insects and on elm disease. He is a versatile "caveman" as, apart from his work on mushroom culture in caves, his hobby is studying the bats which hibernate there. He is a pessimist in one respect, the weather; I think his umbrella is famous among mushroom growers all over North-Western Europe.



Mrs. Henriette C. Bels, who writes under the name of H. C. Bels-Koning, is a Doctor of Philosophy. She also was a student and demonstrator in plant physiology at the University of Utrecht, where they first met, and later at Baarn with Professor Westerdijk, at Delft, and at Versailles.

They were married in 1944 and have worked on mushrooms together in Houthem since 1945. They have the most complete library of scientific publications on mushrooms I have yet seen. The research work is particularly devoted to general cultural conditions, heating, housing, etc., and casing soil.

They have recently completed a standard Dutch handbook on mushroom growing.

Both speak Dutch, English, French and German, and between them they have lectured on mushrooms in Holland, England, Sweden and Finland.

Their visitors to Houthem, who are always assured of a welcome, include scientists, growers and spawn makers from this country and from Belgium, France, Denmark, Sweden, Switzerland, U.S.A. and South Africa.

As one may gather from this record they are keen advocates of more widespread research and exchange of information on mushrooms, and they were instrumental in starting the first International Conference on Mushroom Science, held in Peterborough.

For that and their many other contributions they deserve their place in our portrait gallery of mushroom personalities. R.L.E.

# NEW M.G.A. MEMBERS

## GROWER MEMBERS

- Cackett, W. H., 2 Harts Cottages, Westwell, nr. Ashford, Kent.  
Darlington, R. G., Southcourt Road, Worthing, Sussex.  
Elgey, P. G., 4 Low Hill Place, Smallbridge, Rochdale, Lancs.  
Farmer, S., 193 Commercial Road, Newport, Mon.  
Faulkner, H., Brent Mead, Firwood Road, Lathom, Lancs.  
Greenhill Nurseries Ltd., Hill End Road, Leeds 12, Yorks.  
Hart, H. F., Hart Fertilizer Ltd., High Street, Lindfield, Sussex.  
MacDonald, A. D., South Street House, Whitstable, Kent.  
Mason, W. G., Rozel, Harrietham, Kent.  
Midwood, R., Cotton Exchange, Liverpool 3, Lancs.  
Mouton, G., Champignonnière Chairfine, Caves d'Hydra-Birmandreis, (Voirol), Algiers.  
Muntz, F. A. I., Clapton Revel, Wooburn Moor, Bucks.  
Nichols, G., 37 Poplar Avenue, Bedworth, nr. Nuneaton, Warwicks.  
Piatkowski, Capt. P., Town Pightle Dunwich Lane, Peasenhall, Saxmundham, Suffolk.  
Sancewicz, Z., Radwinter Mushroom Farm, Radwinter, Saffron Walden, Essex.  
Ward, R. F. H., Ickleford Manor Gardens, Hitchin, Herts.  
Yelo, J. Cobarrow, Fort Darland Mushroom Farm, Gillingham, Kent.

## HONORARY MEMBERS

- Abbott, E. A., Brookside, Titchmarsh, Kettering, Northants.  
Cluwen, A. R. Meyer, Welschap 7, Eindhoven, Holland.  
Darlington, R. C., Hastingwood, Harlow, Essex.  
Eclipse Peat Co. Ltd., Ashcott, Somerset.  
Gooding, J. A., 9 Chain Close, Peterborough, Northants.  
Guthrie, J. A., Westbourne, Coalbrook Road, Pontyberem, Llanelly, Wales.  
Hill & Fearn & Co., 81 Saltergate, Chesterfield, Derbys.  
Knights, Alan D., 16 Oaklands Avenue, Romford, Essex.  
Leverington, P. G., Broadham Cottage, Broadham Green, Oxted, Surrey.  
Lowe, H., 41 Bewdley Road, Kidderminster, Wores.  
Melero, A., 427 Wherstead Road, Ipswich, Suffolk.  
Mitchell, F., 7 Evesham Road, Cheltenham, Glos.  
Olsen, P. Gerh., Sonderskov, Fredericia, Denmark.  
Plant Protection Ltd., Research Station, Fernhurst, nr. Haslemere, Surrey.  
Romeiser, G. W., 41 Wren Road, Dagenham, Essex.

## CHANGE OF NAME OR ADDRESS

- Baines & Sons (Leeds) Ltd., 13 Roundhay Place, Leeds 8, Yorks.  
Barraclough, H., Westerton Farm, West Ardsley, Wakefield, Yorks.  
Burr, J. B., Kingfisher Pool, Heath Brook, Wall Heath, Staffs.  
Cartlidge (Morley) Ltd., H., Laneshide Farm, Churwell, Leeds, Yorks.  
Duncan, Miss C., c/o Glaxo Laboratories Ltd., Ulverston, Cumberland.  
Flower, Major R. A., c/o Lloyds Bank, Cox & King's Branch, Pall Mall, S.W.1.  
Fraser, R. J., Winterpick Nurseries, Church Lane, Plummers Plain, Horsham, Sussex.  
Gammons, H. T., Silver Birches, Willington, Beds.  
Llanerch Mushroom Farm Ltd., St. Asaph, Denbighshire, N. Wales.  
Luxmoore, M. C., Snowcap Mushrooms Ltd., Yaxley, Peterborough, Northants.  
Read, I. W., 153 Picnic Point Road, Panania, New South Wales, Australia.  
Shewell-Cooper, Dr. W. E., Horticultural Training Centre, Thaxted, Essex.  
Vitax, Ltd., Burscough Bridge, Ormskirk, Lancs.

# HEATHER FARM LTD.

KING OF WOKING MUSHROOMS  
SALAD AND VEGETABLE GROWERS

REGISTERED OFFICE  
HORSELL COMMON  
WOKING - SURREY

T. H. G.  
G. H. GAHM

5th December, 1951.

Messrs. W. Darlington & Sons Ltd.,  
Southcourt Road,  
Worthing,  
Sussex.

Dear Sirs,

We feel that it is about time we showed our appreciation for the help, advice and service you have given to us since this farm started growing mushrooms.

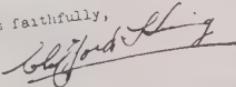
We can only say that without Mr. Gahm's continual and practical advice this farm would never have achieved the results it has done, results which we feel are on the whole exceptionally good. Not only has Mr. Gahm given us advice on actual growing problems, but also on the lay-out of our farm which lent itself to conversion to trays and is now 90% converted to this system.

The service we have received has been always first class, and the products supplied of the best quality not least being your spawn which we now use exclusively having found that it surpassed all other brands under our conditions. As you know, we have recently had a very bad attack of eel-worms, here again the advice of your staff led us to take the necessary action and the results achieved very recently seem to show that we have eliminated this pest.

The tests, which Mr. Woods has undertaken, for us in the past, on soil and compost have always been most useful, and since we have used them for peak heating the P.H. readings which he takes for us and the advice he has given us during our peak testing have combined with our own temperature recordings, proved invaluable in bringing our pasteurisation to its present very high state of efficiency.

Should you feel that this letter would be of any use to your good selves, we shall be only too pleased for you to use it as you think fit.

Yours faithfully,



Clifford H. Gahm  
Director.

## DARLINGTON'S

# 100 % SPAWN

The Most Productive  
Spawn in the World

Come and see us at the Mushroom Industry Exhibition at Worthing—5th March, 1952

B.8

For superb crops of the highest quality mushrooms unique in weight, size and flavour, use Darlington's 100% Spawn—the Most Productive Spawn in the World.

Our Advisory Department is always at your service to help with any problems you may have.

**W. DARLINGTON & SONS LTD.**

WORTHING :: SUSSEX

**PERFECT MANURE TURNING**

**100% AERATION 100% TEASING**

**No. 6**

**DLP COMPOSTER**

PATENT No. 627955 ETC.

ATTACHMENT FOR AUTOMATIC WATER SPRINKLING

— IN USE ALL OVER BRITISH ISLES AND ON CONTINENT —



ALSO SOIL BREAKERS AND SPECIAL MACHINERY  
DESIGNED & MADE FOR NOBLE MUSHROOMS LTD., OF YAXLEY

INQUIRIES TO:

**HARRY F. ATKINS (Machine Tools) Ltd.**  
**OLD FLETTON, PETERBOROUGH**

\*Grams: "ATKINS, OLD FLETTON"

Tel.: Peterborough 2852

introducing . . .

# MURTHANE

Murphy Zinc-Ethylene-Bis-Dithiocarbamate formulated as a wettable powder and a dust

## MURTHANE WETTABLE

Use 1 lb. per 100 gallons, applied at 1 gallon per 100 sq. ft. of bed.

1 cwt.	...	...	£97	10	0
56 lbs.	...	...	£50	0	0
28 lbs.	...	...	£26	0	0
14 lbs.	...	...	£13	10	0
7 lbs.	...	...	£7	0	0

Wet spraying costs approximately 2/- per 1,000 sq. ft.

## MURTHANE DUST 15%

Use 4 oz. per 1,000 sq. ft. of bed.

1 cwt. @ 4/6 lb.	...	£25	4	0
56 lbs. @ 4/9 lb.	...	£13	6	0
28 lbs. @ 5/0 lb.	...	£7	0	0
14 lbs. @ 5/3 lb.	...	£3	13	6
7 lbs. @ 5/6 lb.	...	£1	18	6

Dusting costs approximately 3/9 per 1,000 sq. ft.

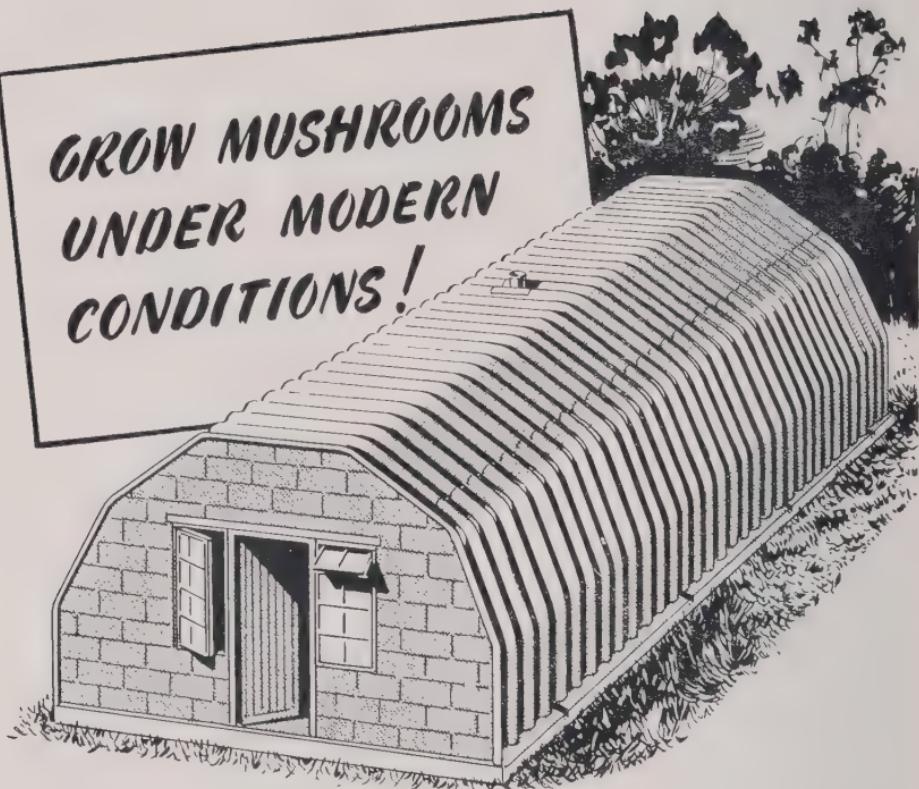
To control: **MYCOGONE, DACTYLIUM  
VERTICILLIUM, RED GEOTRICHUM**

Please write for full details:

THE MURPHY CHEMICAL COMPANY LTD.  
WHEATHAMPSTEAD · HERTFORDSHIRE



**GROW MUSHROOMS  
UNDER MODERN  
CONDITIONS!**



by installing

## **WATFORD HANDCRAFT HUTS**

(PATENTED INTERLOCKING ASBESTOS CEMENT CONSTRUCTION)

THESE Huts are especially suited to the requirements of Mushroom Growers, many of whom are using Watford Handcraft Huts supplied by us. They are indefinitely extensible, comprising double cranked reinforced asbestos cement sections made with a girth of 12' 0" by 48" width giving nett cover—including lapping—at 45°. The span between lining sheets is 18' 0" allowing a clear width entirely free from obstruction of 14' 0" at a headroom of

6' 6". Any suitable wall construction may be used for the end walls including 4½" brickwork, breeze blocks, hollow blocks or asbestos cement sheets. The use of structural timber is entirely obviated and steel requirements reduced to 34 lbs. of seam bolts and washers per Hut × 36' 0" length. Owing to improved conditions of supply, these Handcraft Huts can now be offered complete with asbestos cement flat sheet linings and also various thermal insulating materials if desired.

Full particulars and specification from

**STANDARD RANGE & FOUNDRY CO. LTD.**  
QUEENS ROAD, WATFORD, HERTS.

Telephone: WATFORD 2261 (6 Lines)

● Telegrams: "STANDARD, WATFORD"

## ● COMPOST FOR MUSHROOMS

WHEAT STRAW when treated with ADCO "M" will readily provide a substitute for horse manure for growing mushrooms

# ADCO "M"

## IMPROVES MANURE SUPPLIES

### ● LONG STRAW MANURE

Manure for mushroom culture such as that from racing stables is frequently in too long and dry a condition. This can be considerably improved by using ADCO "M" with better crops as a result.

Particulars & Prices from **ADCO LTD.** HARPENDEN, HERTS

*A WISE MAN HAS SAID:*

"WISHERS AND WOULDERS ARE NEVER GOOD HOUSEHOLDERS"

It is no good wishing you had our Householder's Comprehensive Policy AFTER the accident.

Ask your Farmers Union Secretary to tell you about the Policy's outstanding good points to-day.

**EVERY POSSIBLE RISK  
IN THE HOME  
IS COVERED AT  
LOW COST**

\*

THE

**NATIONAL FARMERS UNION  
MUTUAL INSURANCE SOCIETY  
LIMITED**  
Stratford-on-Avon

Gen. Manager: G. C. D. LINDSAY, F.C.I.I.  
Assets exceed £8,000,000

THE  
ANNUAL  
M.G.A./M.R.A.  
**REFRESHER  
COURSE**  
is at  
**PETERBOROUGH**  
on 24th APRIL

*Established 1895*

**T. J. POUPART LTD.**  
**COVENT GARDEN, LONDON, W.C.2**

Telephones : Temple Bar 9001/8 and 7383/7  
and at

**Spitalfields, E.I.; Brentford & Cheapside, E.C.3**

Associated Companies :

**T. J. POUPART (FLOWERS) LTD.**

32 TAVISTOCK STREET, COVENT GARDEN, W.C.2  
(Phone : Temple Bar 7420, 7589)

**T. J. POUPART (SOUTHAMPTON) LTD.**

66 HIGH STREET, SOUTHAMPTON  
(Phone : Southampton 3363)

**T. J. POUPART (BRISTOL) LTD.**

10-11 WELSH BACK, BRISTOL  
(Phone : Bristol 24255)

**T. J. POUPART (WESTERN) LTD.**

31 CUSTOM HOUSE STREET, CARDIFF  
(Phone : Cardiff 141-42)

**T. J. POUPART (NORTHERN) LTD.**

9-10 QUEEN SQUARE, LIVERPOOL  
(Phone : Royal 8601)

MUSHROOMS ARE HANDLED BY EXPERTS  
AT ALL OUR ESTABLISHMENTS

*Our Sales and Distribution Service covers the whole of  
Great Britain*

A MUSHROOM knows just what it needs  
To make it large and strong,  
It likes a warm and steamy bed,  
The right manure on which it's fed,  
And then it can't go wrong.

There's nothing better than the best,  
And every grower knows,  
Manure from STEVENS does the trick,  
The Mushrooms come both fast and thick,  
As bumper crops he grows.

Long Straw from the Racing Stables,  
Sent by Road or Rail,  
Buy from STEVENS—it's the best,  
Growers set their minds at rest,  
They know it cannot fail.

**STEVENS**  
FOR  
SERVICE

Also  
Bullock or  
Farmyard Manure  
always available

**W. STEVENS**  
THORNWOOD COMMON  
Near EPPING, ESSEX  
Telephone · · EPPING 2253 (3 lines)

'PHONE OR WRITE

ORDERS GIVEN IMMEDIATE ATTENTION

for  
Quality  
and  
Service

**ATLAS**



Specialists in the Manufacture of  
Chip Baskets for the Mushroom  
Grower

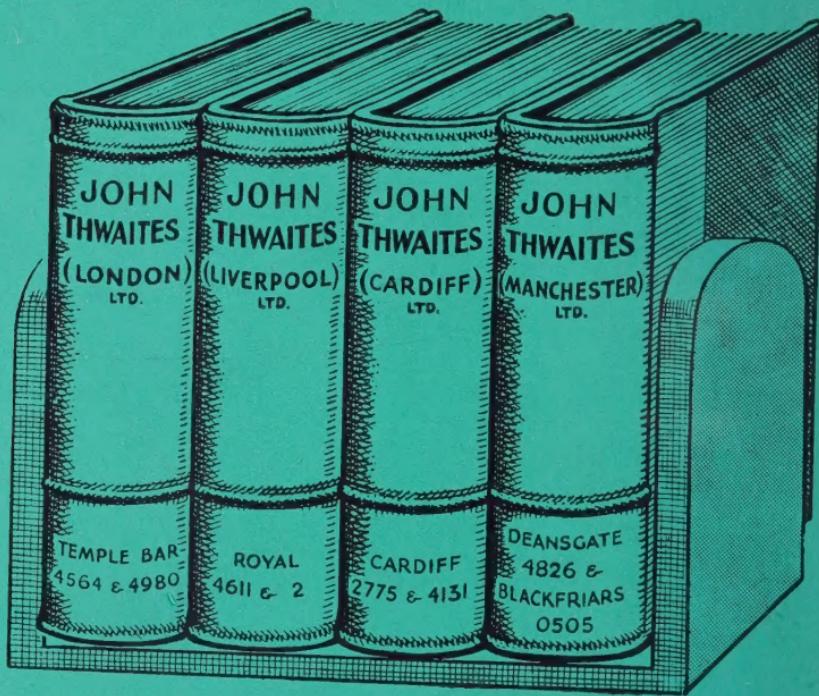
YOUR ENQUIRIES WILL BE WELCOMED

**THE ATLAS BASKET COMPANY LIMITED**  
**HARPENDEN**

**HERTS.**

Telephone : Harpenden 3121

Telegrams : "Atlas, Harpenden"



# Four Best Sellers!

Published by the Mushroom Growers' Association, Yaxley, Peterborough, England  
and printed by W. S. Maney & Son, Russell Street, Leeds 1